



AP 2700

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/637,608  
Applicant : FLYNN, ET AL.  
Filed : AUGUST 11, 2003  
Title : HYDROGEN ODORANTS AND ODORANT SELECTION METHOD

Art Unit : 1754  
Examiner : LANGEL, WAYNE A.

Atty Docket No. : ENER-0001-UT1

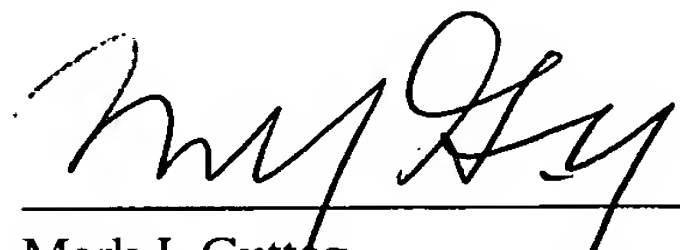
Mail Stop: Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The below-identified communication(s) is (are) submitted in the above-captioned application or proceeding:

- ☒ Amended Appeal Brief
- ☒ Fee Transmittal and Authorization to Charge Deposit Account
- ☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication, including fees under 37 C.F.R. §§ 1.16 and 1.17 or credit any overpayment to **Deposit Account Number 10-0233-ENER-0001-UT1.**

Respectfully submitted,

  
\_\_\_\_\_  
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September 25, 2006



# Patent Fee Transmittal for FY 2006

☒ Applicant(s) Claims Small Entity Status 37 C.F.R. 1.27

**TOTAL AMOUNT OF PAYMENT**

**\$0.00**

Application No. 10/637,608  
Filing Date 11-Aug-03  
Named Inventor FLYNN, et al.  
Examiner Name LANGE, Wayne A  
Art Unit 1754  
Attorney Docket No. ENER-0001-4

## FEE CALCULATION

### 1. Filing Fees

Application Type	Description	Large Entity		Small Entity		Paid
		Code	(\$)	Code	(\$)	
Utility	Basic	1011	300	2011	150	\$ -
	Examination	1311	200	2311	100	\$ -
	Search	1111	500	2111	250	\$ -
Design	Basic	1012	200	2012	100	\$ -
	Examination	1312	130	2312	65	\$ -
	Search	1112	100	2112	50	\$ -
Plant	Basic	1013	200	2013	100	\$ -
	Examination	1313	160	2313	80	\$ -
	Search	1113	300	2113	150	\$ -
Reissue	Basic	1014	300	2014	150	\$ -
	Examination	1114	600	2114	300	\$ -
	Search	1314	500	2314	250	\$ -
Provisional	Basic	1005	200	2005	100	\$ -
National Stage	Basic	1631	300	2631	150	\$ -
	Examination	1633	200	2633	100	\$ -
	Search	1632	500	2632	250	\$ -

### 2. Extra Claim Fee

#### a. Claims as Filed

		Large Entity		Small Entity		Paid
		Code	(\$)	Code	(\$)	
Total Claims	0 - 20 = 0	1201	50	2201	25	\$ -
Independent	0 - 3 = 0	1202	200	2202	100	\$ -
Multiple Dependent		1203	360	2203	180	\$ -

#### b. Claims as Amended

		Large Entity		Small Entity		Paid
		Code	(\$)	Code	(\$)	
Total Claims	25 - 25 = 0	1201	50	2201	25	\$ -
Independent	3 - 3 = 0	1202	200	2202	100	\$ -
First Presentation of Multiple Dependent		1203	360	2203	180	\$ -

### 3. Extra Page Fee

		Large Entity		Small Entity		Paid
		Code	(\$)	Code	(\$)	
Total Pages	0 - 100 = 0	1081	250	2081	125	\$ -

#### Subtotal for Application Fees

1 \$ - + 2 \$ - + 3 \$ - = \$ -

### 4. Additional Fees

Description	Large Entity		Small Entity		Paid
	Code	(\$)	Code	(\$)	
Extension for response first month	1251	120	2251	60	\$ 60
Extension for response second month	1252	450	2252	225	\$ -
Extension for response third month	1253	1,020	2253	510	\$ -
Extension for response fourth month	1254	1,590	2254	795	\$ -
Extension for response fifth month	1255	2,160	2255	1,080	\$ -
Notice of Appeal	1401	500	2401	250	\$ -
Filing a Brief in Support of an Appeal	1402	500	2402	250	\$ -
Request for Oral hearing	1403	1,000	2403	500	\$ -
Petitions under 1.17(f)	1462	400	1462	400	\$ -
Petitions under 1.17(g)	1463	200	1463	200	\$ -
Petitions under 1.17(h)	1464	130	1464	130	\$ -
Petition - public use proceeding	1451	1,510	1451	1,510	\$ -
Petition to Revive - Unavoidable	1452	500	2452	250	\$ -
Petition to Revive - Unintentional	1453	1,500	2453	750	\$ -
Utility Issue Fee	1501	1,400	2501	700	\$ -
Design Issue Fee	1502	800	2502	400	\$ -
Plant Issue Fee	1503	1,100	2503	550	\$ -
Reissue Issue Fee	1511	1,400	2511	700	\$ -
Publication Fee	1504	300	1504	300	\$ -
Statutory Disclaimer	1814	130	2814	65	\$ -

(cont.)

#### Description (cont.)

Description (cont.)	Large Entity		Small Entity		Paid
	Code	(\$)	Code	(\$)	
Recording each Assignment	8021	40	8021	40	\$ -
Submission of IDS	1806	180	1806	180	\$ -
Request for Cont. Examination (RCE)	1801	790	2801	395	\$ -
Filing Submission After Final	1809	790	2809	395	\$ -
Surcharge - late filing fee or oath	1051	130	2051	65	\$ -
Surcharge - late provisional fee	1052	50	2052	25	\$ -
Non-English Specification	1053	130	1053	130	\$ -
Processing Fee 37 CFR 1.17(q)	1807	50	1807	50	\$ -
Request for Ex Parte Reexamination	1812	2,520	1812	2,520	\$ -
Request Pub. of SIR prior to action	1804	920	1804	920	\$ -
Request Pub. of SIR after action	1805	1,840	1805	1,840	\$ -
Each Add. Invention Examined	1810	790	2810	395	\$ -
Expedited Examination (Design)	1802	900	1802	900	\$ -
Unintentionally Delayed Priority Claim	1453	1,370	1453	1,370	\$ -
Certificate of Correction	1811	100	1811	100	\$ -
Maintenance Fees 3.5 years	1551	900	2551	450	\$ -
Maintenance Fees 7.5 years	1552	2,300	2552	1,150	\$ -
Maintenance Fees 11.5 years	1553	3,800	2553	1,900	\$ -
Surcharge - Late Payment 6 mos.	1554	130	2554	65	\$ -
Other fee					\$ -

Additional Fee Subtotal 4

### METHOD OF PAYMENT (Check all that apply)

☒ Credit Card (Provide credit card information and authorization on PTO-2038)

☒ Deposit Account No.

10-0233-ENER-0001-UT1

For the above-identified deposit account, the Director is hereby authorized to:

☐ To charge the above-identified fee.

☒ To charge any additional fees which may be required under 37 CFR 1.16, 1.17, 1.18, 1.20 and 1.492 or credit any overpayment to the deposit account number listed above.

Submitted by:

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September 25, 2006

Date



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application No. : 10/637,608  
Appellant/Applicant : FLYNN, *et al.*  
Filed : AUGUST 11, 2003  
Title : HYDROGEN ODORANTS AND ODORANT SELECTION METHOD

Art Unit : 1754  
Examiner : LANGEL, WAYNE A.

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**APPEAL BRIEF**

Sir:

This is an appeal of claims 2-4, 7-11, 45-53 and 59 currently pending in the present application that were rejected by the Examiner in a Final Action dated December 20, 2005 (Final Action). A Notice of Appeal and Request for Pre-Appeal Brief Review (Request) was timely submitted by Applicants to the Patent and Trademark Office on January 12, 2006. A Notice of Panel Decision from Pre-Appeal Brief Review (Decision) was mailed on March 16, 2006, resetting the due date for filing an Appeal Brief to April 16, 2006. Applicants timely submitted an Appeal Brief to the Board of Appeals and Patent Interferences (Board) by: (1) submitting this Appeal Brief within one-month of the date set forth in the Decision, (2) filing a petition for a one-month extension of time and (3) paying the appropriate fee. No fee is required for the Appeal Brief itself, because Applicants previously paid the requisite fee for an Appeal Brief on June 23, 2005.

Applicants are timely submitting the present amended Appeal Brief by filing this Appeal Brief within one (1) month of the Notification of Non-Compliant Amendment of September 21, 2006. The present amended Appeal Brief includes a statement of the status of all claims as required by 37 C.F.R. § 41.37(c)(1)(iii).



Application No. 10/637,608  
Action of Attorney Docket No. ENER-0001-UT1

Appeal Brief in Response to Final  
December 20, 2005

### **I. REAL PARTY IN INTEREST**

The real party in interest is Enersol, Inc., the assignee of the present application.

### **II. RELATED APPEALS AND INTERFERENCES**

There are currently no appeals or interferences known to Applicants, Applicants' legal representative, or the assignee that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **III. STATUS OF CLAIMS**

Claims 1, 5-6, 12-14, 16, 19-20, 28-30, 32, 35-36, 42-44 are cancelled. Claims 15, 17-18, 21-27, 31, 33-34, 37-41, 54-58, 60 and 61 are withdrawn.

Claims 2-4, 7-11, 47-53 and 59 are currently pending and are the only rejected claims on appeal. Currently pending Claims 45 and 46 have been deemed to be allowable if rewritten in independent form. A clean copy of Claims 2-4, 7-11, 47-53 and 59 on appeal appears in the attached Claims Appendix.

### **IV. STATUS OF AMENDMENTS**

No amendments have been filed since the Final Action of December 20, 2005.

### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Applicants' claimed invention relates to a hydrogen composition comprising: hydrogen and an odorant that is a selenium compound. The selenium odorant has a vapor pressure greater than 0.5 psi, has a smell detectable at less than 1 ppm by a human nose, and is in a vapor phase at a detectable concentration at a pressure of 6000 psi (See Claim 2, and the specification at paragraphs [0010] and [0066]\*). Embodiments of Applicants claimed invention include:

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\*For convenience, all paragraph references in the present Appeal Brief are to United States Published Patent Application No. 2004/0031314.

1. A hydrogen composition consisting essentially of hydrogen gas and the selenium odorant (See Claim 7, and the specification at paragraphs [0010] and [0066]).
2. The selenium odorant being from 0.01 to 1000 ppm of the composition (see Claim 8) with the odorant comprising 0.1 to 40 ppm of the composition (see Claim 9).
3. The selenium odorant not being harmful to humans (see Claim 10).
4. A hydrogen composition, wherein the selenium odorant has a minimum olfactory power of 7.0, a minimum vapor pressure of 0.5 psi at standard temperature and pressure, a minimum diffusivity of  $0.01147 \text{ cm}^2/\text{s}$ , and a maximum molecular weight of 200 g/mol (see Claim 11).
5. The selenium compound may be specifically: ethylselenol (see Claim 3), dimethyl selenide (see Claim 4), methylselenol (see Claim 47), isopropylselenol (See Claim 48), propylselenol (see Claim 49), ethylmethylselenide (see claim 50), isopropylmethylselenide (see Claim 51), tertbutylselenol (see Claim 52), or diethylselenide (see Claim 53). See also Table 11 of paragraph [0129] of the specification.
6. The selenium compound being in a vapor phase at a pressure greater than ambient pressure (see Claim 59)

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

There are five grounds of rejection to be reviewed on this appeal:

- A. The first ground of rejection is whether Claims 2-4, 7-11, 47-53 and 59 are unpatentable under 35 U.S.C. § 103(a) over French Patent 2,645,622 (“FR ‘622”) in view of U.S. Patent No. 1,642,953 to Prentice (“Prentice”);
- B. The second ground of rejection is whether Claims 2, 7-11 and 59 are unpatentable under 35 U.S.C. § 103(a) over FR ‘622 in view either U.S. Patent No. 5,221,545 to Borschel *et al.* (“Borschel”) or U.S. Patent No. 4,496,639 to Rasmussen *et al.* (“Rasmussen”).
- C. The third ground of rejection is whether Claims 2, 3, 7-11, 47-49, 52 and 59 are unpatentable under 35 U.S.C. § 103(a) over FR ‘622 in view of U.S. Published Application No. 2002/0197304 A1 to Schrauzer (“Schrauzer”); and
- D. The fourth ground of rejection is whether Claims 2, 4, 7-11, 50, 51, 53 and 59 are unpatentable under 35 U.S.C. § 103(a) over FR ‘622 in view of U.S. Patent No. 4,656,038 to Baugh (“Baugh”).
- E. The fifth ground of rejection is whether Claim 59 complies with the written description requirement of 35 U.S.C. § 112, first paragraph.

## VII. ARGUMENT

### A. General Reasons that the Prior Art Rejections of Claims 2-4, 7-11, 47-53 and 59 in the Final Action are *Prima Facie* Improper.

There are at least six reasons why all of the prior art rejections in the Final Action are *prima facie* improper: (1) the Examiner has failed to provide an Affidavit under 37 CFR § 104(d)(2) that was properly requested by Applicants; (2) the rejections of the Claims 2-4, 7-11, 47-53 and 59 over the cited prior art are based on reasoning that directly contradicts the conclusions of the Restriction Requirement; (3) the rejections of the claims over the cited prior art are based on reasoning that contradicts the conclusions reached in the Non-Elected Invention Determination of the Final Action; (4) the rejections of the claims over the cited prior art are based on the improper grounds that the Examiner believes that he can reject claims under 35 U.S.C. § 103 without making a *prima facie* case of obviousness; (5) the rejections of the claims over the cited prior art are based on a mischaracterization the Applicant's arguments during prosecution of the present application; (5) the rejections of 2-4, 7-11, 47-53 and 59 over the cited prior art are based on a mischaracterization of what FR' 622 teaches and suggests; and rejections of Claims 2-4, 7-11, 47-53 and 59 over the cited prior art fail to comply with 37 CFR § 1.104(c)(2).

#### 1. Failure of Examiner to Comply with 37 CFR § 104(d)(2).

In the Final Action of July 27, 2005 Office Action (July Office Action), the Examiner made several statements having no basis in the references relied on in rejecting Claims 2-4, 7-11, 47-53 (and later relied on in rejecting Claim 59 that was added by Applicant's October 2005 Amendment). In their response to the July Office Action, (see Applicants' October 2005 Amendment, Section E, pp. 29-30), Applicants properly requested the Examiner to supply an affidavit/declaration under 37 CFR § 1.104(d)(2) in support of those statements. Because the Examiner has failed to



comply with the 37 CFR § 1.104(d)(2) in providing the requested affidavit/declaration, the rejections of Claims 2-4, 7-11, 47-53 and 59 are *prima facie* improper and should be withdrawn.

2. **Rejections of Claims 2-4, 7-11, 47-53 and 59 are based on reasoning that directly contradicts the conclusions of the Restriction Requirement.**

In the July 24, 2004 Restriction Requirement (Restriction Requirement), the Examiner stated that the use of selenium compounds, methylamine or trimethylamine, oxygen compounds and nitrogen compounds in the claims of the present invention were patentably distinct from the use of sulfur compounds, (see Restriction Requirement, p. 4). Therefore, in the Restriction Requirement, the Examiner effectively stated that a claim to the use a selenium compound, methylamine or trimethylamine, oxygen compound or nitrogen compound as an odorant with a hydrogen composition would be patentably distinct over a reference that only taught the use of a sulfur compound as odorant with a hydrogen composition. In view of the conclusions reached in the Restriction Requirement, a reference, such as FR '622, that only describes using sulfur compounds as odorants cannot suggest using selenium compounds, methylamine or trimethylamine, oxygen compounds or nitrogen compounds as odorants, much less the use of *any odorous gaseous product* as an odorant. Furthermore, the fact that **FR '622** describes the use of sulfur-containing compounds as odorants actually *supports the Examiner's conclusions in the Restriction Requirement that other odorants, including selenium compounds as claimed in Claims 2-4, 7-11, 47-53 and 59, are patentably distinct from sulfur compounds.*

Nevertheless, in direct contradiction to the conclusions reached in the Restriction Requirement, the Final Action maintains that "FR '622 suggests in the Abstract that *any odorous gaseous product* may be added" (emphasis added) in rejecting: Claims 2-4, 7-11, 47-53 and 59 over FR '622 in view of Prentice (see Final



Action p. 3); Claims 2, 7-11 and 59 over FR '622 in view of Borschel or U.S. Patent Rasmussen (see Final Action. p. 3); Claims 2, 3, 7-11, 47-49, 52 and 59 over FR '622 in view of Schrauzer (see Final Action, pp. 3-4); and Claims 2, 4, 7-11, 50, 51, 53 and 59 over FR '622 in view of Baugh (see Final Action, p. 4). Also, despite the Applicants repeated requests of the Examiner to explain how his position with respect to what FR '622 suggests is consistent with his conclusion in the Restriction Requirement (see Appeal Brief dated June 23, 2005, pg. 5; Amendment dated October, 27, 2005, page 30; and March 28, 2005 telephone interview ), the Examiner has never adequately explained why his allegation that FR '622, a reference that only teaches the use of sulfur-containing odorants, can suggest the use of any odorous gaseous product is consistent with his conclusion in the Restriction Requirement that selenium compounds, methylamine or trimethylamine, oxygen compounds and nitrogen compounds are patentably distinct from sulfur compounds.

Accordingly, based on the conclusions of the Restriction Requirement, FR '622 cannot teach or suggest the use of any odorous gaseous product, and any rejection based on the allegations that FR '622 does suggest the use of any odorous gaseous product is *prima facie* improper. For the reasons discussed above, all of the rejections of the Claims 2-4, 7-11, 47-53 and 59 are based on that allegation that that FR '622 does suggest the use of any odorous gaseous product, so all of the rejections of Claims 2-4, 7-11, 47-53 and 59 are *prima facie* improper and should be withdrawn.

3. **Rejections of Claims 2-4, 7-11, 47-53 and 59 are based on reasoning that contradicts the conclusions reached in the Non-Elected Invention Determination of the Final Action.**

In the Final Action, newly submitted Claims 54-58, 60 and 61 were held in the Non-Elected Invention Determination Section of the Final Action to be directed to a non-elected invention (see Final Action, p. 2). This means that Claims 54-58, 60 and 61 are considered to be *patentably distinct* from Claims 2-4, 7-11, 45-53 and 59. Applicants note that allowable elected Claims 45 and 46 claim "A fuel cell containing

the composition of claim 2” and “The fuel cell of Claim 45 wherein the fuel cell is a vehicle fuel cell,” respectively. Furthermore, Applicants note that Claim 57 claims a container containing the composition of Claim 2, “wherein said container is part of a vehicle.” Nevertheless, the Final Action has indicated that a vehicle including a container containing the composition of Claim 2 is *patentably distinct* from a vehicle including a fuel cell containing the composition of Claim 2, the Non-Elected Invention. Therefore, the Examiner has concluded a person of ordinary skill in the art reading a reference describing the use of a hydrogen composition with an *odorant in a vehicle fuel cell* (a type of vehicle container), *would not be motivated* to read a reference relating to the use of the *same composition and odorant in another type of vehicle container*.

Nevertheless, the *Final Action alleges* that person of ordinary skill in the art reading the Abstract describing *a method for dispensing industrial hydrogen* (FR ‘622, see Abstract) *would be motivated to look for a reference describing: a defensive and offensive projector composition* (see Prentice, Title and p.1, lines 1-3); *a method of providing selenium in a nutritional product* (see Borschel, Title and Col. 1, lines 7-10); *a hydrogen selenide treatment of electrolytes* (see Rasmussen, Title, and Col. 1, lines 31-38); *compositions for the treatment of cancer* (see Schrauzer, Title and paragraph [0010]; and *an animal repellant* (see Baugh, Title and Col. 2, lines 55-62) (see Final Action, pp. 3-4). As can be seen, in rejecting Claims 2-4, 7-11, 47-53 and 59, the *Final Action combines references that are far more dissimilar from each other than the product of Claim 57 is from that of Claim 46*, both of which claim vehicle containers containing the composition of Claim 2.

Accordingly, Claims 2-4, 7-11, 47-53 and 59 have been rejected based on reasoning that contradicts the Non-Elected Invention Determination in the Final Action, and, therefore, the rejections of Claims 2-4, 7-11, 47-53 and 59 are *prima facie* improper for this additional reason.

4. The rejections of Claims 2-4, 7-11, 47-53 and 59 are based on the improper grounds that the Examiner believes that he can reject claims under 35 U.S.C. § 103 without making a *prima facie* case of obviousness.

As stated in the MPEP at § 706.02(j), in making an obviousness rejection:

*The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done.*

“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). (emphasis added)

Nevertheless, the Examiner has made the following statement in support of his rejections of Claims 2-4, 7-11, 47-53 and 59:

“Applicants’ argument, that FR ‘622 does not and cannot suggest that compounds other than sulfur compounds may be used as odorants with hydrogen, is not convincing, *since applicants have not explained why* the disclosure in the Abstract of adding an “odorous gaseous product” *would not suggest* the addition of an odorous gaseous product, regardless of whether such product is sulfur-containing or non-sulfur (Final Action, p. 4, emphasis added).

The above statement indicates that the Examiner believes that unless the Applicants show why their claimed invention is patentable, the Examiner is not required to make a *prima facie* case of obviousness. However, as stated in MPEP 706.02(j), the initial burden is on the Examiner to make a *prima facie* case of obviousness, and not on the Applicants to prove that their claimed invention is patentable. Because the Examiner has relied on improper understanding of the Examiner’s burden of making a *prima facie* case of obviousness in rejecting Claims 2-4, 7-11, 47-53 and 59, the rejection of these claims is improper.

5. **The rejections of Claims 2-4, 7-11, 47-53 and 59 are based on a mischaracterization the Applicant's arguments during prosecution of the present application.**

In rejecting Claims 2-4, 7-11, 47-53 and 59, the Examiner has made the following statement:

“Applicants’ argument, that FR ‘622 does not and cannot suggest that compounds other than sulfur compounds may be used as odorants with hydrogen, is not convincing, *since applicants have not explained why* the disclosure in the Abstract of adding an “odorous gaseous product” *would not suggest* the addition of an odorous gaseous product, regardless of whether such product is sulfur-containing or non-sulfur (Final Action, p. 4, emphasis added).

However, the above statement completely mischaracterizes the arguments made during prosecution. *As repeatedly explained by the Applicants during prosecution*, FR ‘622 does not and cannot suggest the addition of a non-sulfur containing gaseous product, because: (1) the Examiner himself has stated in the Restriction Requirement, that non-sulfur containing gaseous products are patentably distinct from sulfur-containing gaseous products *i.e.* that a reference describing only sulfur products cannot teach or suggest the use of non-sulfur containing products, (2) the Examiner has never identified a single non-sulfur containing gaseous product taught or suggested by FR ‘622, either in the Final Action or any in other Office Action (see Applicant’s October 27, 2005 Amendment, Sections A(1)(a), A(1)(c), A(2)(a), B(1)(a), *etc.*).

Because the rejections of Claims 2-4, 7-11, 47-53 and 59 are based on this mischaracterization of Applicants’ arguments, the rejection of Claims 2-4, 7-11, 47-53 and 59 are *prima facie* improper and should be withdrawn.

6. The rejections of 2-4, 7-11, 47-53 and 59 are based on a mischaracterization of what FR '622 teaches and suggests.

Contrary to what is repeatedly alleged in the Final Action, FR '622 does not suggest "in the Abstract than any odorous compound may be added" (see Office Action, pp. 2-3). In fact, FR '622 does not even teach or suggest that all sulfur compounds can be used with hydrogen. FR '622 not only teaches and suggests just the use of sulfur compounds, but *only describes the use of three types of sulfur compounds*: mercaptan, thiophane and TBM (tertiary butyl mercaptan) odorants (see FR '622, Abstract).

In addition, the allegation by the Final Action that French '622 would lead a person of ordinary skill in the art to use *any and all odorous gaseous products* in place of the sulfur compounds of FR '622 is also absurd, for at least the reasons discussed below. Applicants note that in FR '622, the sulfur compounds are used as a "safety measure" (see the title of FR '622). Nevertheless, by alleging that FR '622 suggests and any and all odorous gaseous products, the Final Action effectively argues that FR '622 would suggest the use of the following "odorous gaseous products": (1) hydrocyanic acid which is well known to smell like bitter almonds; (2) *bis*(2-chloroethyl)sulfide which is well known to have a sweet, agreeable odor; and (3) phosgene which is well known to have the odor of moldy hay. Hydrocyanic acid was made infamous as Zyklon B used in the gas chambers of Auschwitz. *Bis*(2-chloroethyl)sulfide (better known as "mustard gas"), and phosgene were both used as chemical weapons in the First World War. As can be seen, the idea that the FR '622 suggests the use of any and all gaseous products is absurd. In addition, given the fact that mustard gas is a sulfur compound, FR '622 would not even suggest to a person of ordinary skill in the art that all sulfur compounds could be used as a "safety measure" in place of the particular types of sulfur compounds described by FR '622.

For at least the above reasons, the rejections of 2-4, 7-11, 47-53 and 59 are based on a mischaracterization of what FR '622 teaches and suggests, and therefore, the rejections are *prima facie* improper and should be withdrawn.

7. **The failure of the Final Action to comply with 37 CFR § 1.104(c)(2)**

In rejecting: Claims 2-4, 7-11, 47-53 and 59 over FR '622, the Final Action alleges that "FR '622 suggests in the Abstract that any odorous gaseous product may be added" (see discussion in Section A(6) above). However, the Examiner has failed to identify in the Final Action where FR '622 describes the use of single odorous product that does not contain sulfur. Instead, FR '622, as discussed above, only discloses specific sulfur compounds and leaves it for Applicants to speculate as to why "FR '622 suggests in the Abstract that any odorous gaseous product may be added." Therefore, for the above reasons, the Final Action fails to comply with 37 CFR § 1.104(c)(2) that requires the "pertinence . . . of each reference be *clearly explained* (emphasis added)." Because the Final Action fails to comply with 37 CFR § 1.104(c)(2) for at least the reasons discussed above, the rejections of Claims 2-4, 7-11, 47-53 and 59 are *prima facie* improper and should be withdrawn.

B. **Rejection of claims 2-4, 7-11, and 47-53 and 59 as being unpatentable under 35 U.S.C. § 103(a) over FR '622 in view of Prentice.**

In addition to the reasons discussed above in Section A, in rejecting Claims 2-4, 7-11, 47-53 and 59 as being unpatentable under 35 U.S.C. § 103(a) over FR '622, in view of Prentice, the Examiner has erred for at least the following additional reasons: (1) Prentice cannot be properly combined with FR '622 and (2) the Final Action has provided no proper motivation for combining Prentice with FR '622.



1. **Prentice cannot be properly combined with FR '622 to reject claims 2-4, 7-11, 47-53 and 59.**
  - a. **FR '622 does not teach nor suggest non-sulfur odorous compounds.**

The Examiner makes the following conclusory allegation at paragraph 3 of page 2 of the Final Action:

It would be obvious from Prentice to employ a selenium compound as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be added . . . .

*However, the Examiner has failed to identify a single non-sulfur odorous compound taught or suggested by FR '622, either in the Abstract or anywhere else FR '622. Therefore, the Examiner's allegation, quoted above, is unsupported by any evidence. Furthermore, the fact the rejection of claims 2-4, 7-11, 47-53 and 59 is based on this unsupported allegation make the rejection of claim 2-4, 7-11, 47-53 and 59 *prima facie* improper.*

- b. **The Examiner has admitted that the selenium compounds are patentably distinct over the sulfur compounds described in FR '622.**

Furthermore, as admitted by the Examiner at page 4 of his July 24, 2004 Restriction Requirement (Restriction Requirement), selenium compounds are a "patentably distinct" species from sulfur compounds. Because the Examiner, a person of at least ordinary skill in the art, has admitted that selenium compounds are *patentably distinct* from sulfur compounds, a reference, such as FR '622, that only describes sulfur compounds, cannot possibly motivate a person of ordinary skill in the art to look for a reference that describes any other type of compounds, much less selenium compounds.



The Examiner's backtracking with respect to the Examiner's previous admission that selenium compounds are patentably distinct from sulfur compounds is also at least implicitly contrary to § 803 of the Manual of Patent Examining Procedure (MPEP) which states the following: "Under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent (MPEP § 806.04 - § 806.04(i)) or distinct (MPEP§806.05 - § 806.05(i))."

c. The Examiner's combination of Prentice with FR '622 is based on an improper hindsight reliance on Applicants' Application.

i. FR' 622 provides no reason for combining a reference describing selenium compounds with FR '622.

Given the facts that: (1) the Examiner has been unable to identify a single non-sulfur compound taught or suggested by FR '622 and (2) the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds, the Examiner's combining of a reference describing selenium compounds with FR '622 to remedy FR '622's deficiency of neither teaching nor suggesting selenium compounds can only be based on an improper hindsight reliance on Applicants' own disclosure in the present application. As the Federal Circuit has stated in *Cardiac Pacemakers Inc. v. St Jude Medical Inc.* 72 USPQ2d 1333, 1336 (Fed. Cir 2004) that "Prior knowledge in the field of the invention must be supported by tangible teachings of reference materials, and the suggestion to combine references must not be derived by hindsight from knowledge of the invention itself. See also *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79 [42 USPQ2d 1378] (Fed. Cir. 1997) ("However, the record must provide a teaching, suggestion, or reason to substitute

computer-controlled valves for the system of hoses in the prior art. The absence of such a suggestion to combine is dispositive in an obviousness determination.”).

ii. **The Examiner has failed to explain why a person of ordinary skill in the art reading FR ‘622 would look for Prentice.**

Prentice describes and “odorous component” as being used as part of a “defensive and offensive projector composition” that is designed to “repel, nullify, discourage or prevent an attack on vehicles and places handling or storing valuables” (see Prentice, Title and p. 1, lines 4-8). The Examiner’s failure to explain why a person of ordinary skill in the art looking for an odorant to use in a gaseous composition (FR ‘622) would look for a patent directed an “odorous component” that is used as part of a “defensive and offensive projector composition” that is designed to “repel, nullify, discourage or prevent an attack on vehicles and places handling or storing valuables” is evidence that the Examiner has relied on improper hindsight reasoning and Applicants’ own application in order to combine Prentice with FR ‘622.

d. **The deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Prentice or any other reference.**

For the reasons discussed above, the deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Prentice or any other reference. Therefore, the combination of Prentice with FR ‘622 is *prima facie* improper, and the rejection of claims 2-4, 7-11, and 47-53 over the combination of Prentice with FR ‘622 is *prima facie* improper and should be withdrawn

2. **The rejection of claims 2-4, 7-11, 47-53 and 59 over the combination of Prentice with FR '622 is *prima facie* improper because the Final Action has provided no proper motivation for combining Prentice with FR '622.**

a. **The Examiner's alleged motivation for combining Prentice with FR '622 is based on a mischaracterization of FR '622.**

The rejection of claims 2-4, 7-11, 47-53 and 59 over the combination of Prentice with FR '622 is *prima facie* improper because the Examiner provides no appropriate basis for combining Prentice with FR '622. As set forth in the Manual of Patent Examining Procedure (MPEP) at § 706.02(j), "To establish a *prima facie* case of obviousness . . . there must be some suggestion or motivation, *either in the references themselves or in the knowledge generally available to one of ordinary skill in the art*, to modify the reference or to combine reference teachings (emphasis added) . . . The teaching or suggestion to make the claimed combination and the reasonable expectation of success *must both be found in the prior art and not based on Applicants' disclosure* (emphasis added). *In re Vaeck*, 947 F.2d. 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

The Final Action attempts to justify combining Prentice with FR '622 based on the following conclusory statement which relies not on the references of Prentice or FR '622, but instead on Applicants' own disclosure:

It would be obvious from Prentice to employ a selenium compound as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be added . . . (See Final Action, p. 2).

However, the above allegation by the Examiner mischaracterizes what FR '622 actually teaches and/or suggests. Contrary to the above allegation by the Examiner, FR '622 does not and cannot suggest that compounds other than sulfur, much less selenium compounds, may be used as odorants with hydrogen. FR '622 only

describes the use of mercaptan, thiophane and TBM (tertiary butyl mercaptan) odorants (see FR '622, Abstract), all of which are *sulfur compounds*. The Examiner has also failed to identify a single non-sulfur compound that is taught or suggested by FR '622. Therefore, the Examiner has failed to properly identify a motivation in FR '622 for combining Prentice with FR '622. As stated by the Federal Circuit in *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, 55 USPQ2d 1927, 1931 (Fed. Cir. 2000), “[d]etermining whether there is a suggestion or motivation to modify a prior art reference is one aspect of determining the scope and content of the prior art, a fact question subsidiary to the ultimate conclusion of obviousness.” (citing *Tec Air, Inc. v. Denso Mfg.*, 52 USPQ2d 1296, 1297-98 (Fed. Cir. 1999) (stating that the factual underpinnings of obviousness include whether a reference provides a motivation to combine its teachings with another)). Furthermore, as noted by the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), specific reasons must be shown in the art suggesting a combination of references. (See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.”)).

- b. The fact the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds is inconsistent with the Examiner’s arguments for combining Prentice with FR '622.

In addition to FR '622 failing to suggest the use of non-sulfur compounds, as stated by the Examiner at page 4 of the Restriction Requirement, selenium compounds are a “patentably distinct species” from sulfur compounds. Therefore, since, as the

Examiner has previously admitted, selenium compounds are *patentably distinct from sulfur compounds*, it would *not be obvious* for a person of ordinary skill in the art to employ a selenium compound, including the selenides of Prentice, in place of the sulfur compounds of FR '622.

c. **The Examiner's basis for combining Prentice with FR '622 is based on a mischaracterization of what Prentice discloses.**

The Examiner alleges that, "Prentice establishes the equivalence between mercaptans and selenides (see Final Action, p. 2)." However, this allegation by the Examiner mischaracterizes and overstates what Prentice describes. For example, Prentice states that:

The odorous or tracer component may be butyl mercaptan or any isonitrile, thiocyanate, mercaptan, sulphide, selenide or nitrogen derivative (see Prentice, p. 2, lines 6-10).

As seen in the above quoted portion of Prentice cited by the Examiner, Prentice never states that selenides are the "equivalent" of mercaptans. Also, selenides and mercaptans are but two of several types of compounds that Prentice state may be used in Prentice's composition.

d. **The rejection of claims 2-4, 7-11, 47-53 and 59 over the combination of Prentice with FR '622 is based on an improper obvious to try standard.**

Also, the Examiner has not identified any criteria set forth in FR '622, Prentice or any other reference, that would motivate a person of ordinary skill in the art to choose which of the several odorants described in Prentice could be used in the place of the mercaptan odorant of FR '622 in a composition including hydrogen. Therefore, the Final Action argues that it would merely be "obvious to try" to substitute a

selenide for the sulfur compounds of FR '622. However, as stated in *In re Deuel*, 34 USPQ2d 1210, 1216 (Fed. Cir. 1995), "'Obvious to try' has long been held not to constitute obviousness. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1680-81 (Fed. Cir. 1988)." Therefore, claim 2 is patentable over FR '622, because claim 2 has been rejected based on an improper "obvious to try" standard.

3. **The rejection of claims 2-4, 7-11, 47-53 over the combination of Prentice with FR '622 is *prima facie* improper and should be withdrawn.**

For the reasons discussed above, the rejection of claims 2-4, 7-11, 47-53 and 59 over the combination of Prentice with FR '622 is *prima facie* improper and should be withdrawn. Therefore, claims 2-4, 7-11, 47-53 and 59 are patent.

C. **Rejection of claims 2, 7-11 and 59 as being unpatentable under 35 U.S.C. § 103(a) over FR '622 in view of either Borschel or Rasmussen.**

In addition to the reasons discussed above in Section A, in rejecting Claims 2-2, 7-11 and 59 as being unpatentable under 35 U.S.C. § 103(a) over French '622 in view of either Borschel or Rasmussen, the Examiner has erred for at least the following additional reasons: (1) Neither Borschel nor Rasmussen can be properly combined with FR '622 and (2) the Final Action has provided no proper motivation for combining Borschel or Rasmussen with FR '622.

1. **Neither Borschel nor Rasmussen can be properly combined with FR '622 to reject claims 2, 7-11 and 59.**
  - a. **FR '622 does not teach nor suggest non-sulfur odorous compounds.**

The Examiner makes the following conclusory allegation at paragraph 4 of page 2 of the Final Action:

It would be obvious from either Borschel et al or Rasmussen et al to employ hydrogen selenide as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be added . . . .

*However, the Examiner has failed to identify a single non-sulfur odorous compound taught or suggested by FR '622, either in the Abstract or anywhere else FR '622. Therefore, the Examiner's allegation, quoted above, is unsupported by any evidence. Furthermore, the fact the rejection of claims 2, 7-11 and 59 is based on this unsupported allegation make the rejection of claim 2, 7-11 and 59 *prima facie* improper.*

- b. **The Examiner has admitted that the selenium compounds are patentably distinct over the sulfur compounds described in FR '622.**

Furthermore, as admitted by the Examiner at page 4 of his July 24, 2004 Restriction Requirement (Restriction Requirement), selenium compounds are a "patentably distinct" species from sulfur compounds. Because the Examiner, a person of at least ordinary skill in the art, has admitted that selenium compounds are *patentably distinct* from sulfur compounds, a reference, such as FR '622, that only describes sulfur compounds, FR '622 cannot possibly motivate a person of ordinary skill in the art to look for a reference that describes any other type of compounds, much less selenium



compounds. The Examiner's backtracking with respect to the Examiner's previous admission that selenium compounds are patentably distinct from sulfur compounds is also at least implicitly contrary to § 803 of the Manual of Patent Examining Procedure (MPEP) (see quotation from MPEP § 803 above).

c. **The Examiner's combination of Borschel or Rasmussen with FR '622 is based on an improper hindsight reliance on Applicants' Application.**

i. **FR' 622 provides no reason for combining a reference describing a selenium compound with FR '622.**

Given the facts that: (1) the Examiner has been unable to identify a single non-sulfur compound taught or suggested by FR '622 and (2) the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds, the Examiner's combining of a references describing a selenium compound with FR '622 to remedy FR'622's deficiency of neither teaching nor suggesting selenium compounds can only be based on an improper hindsight reliance on Applicants' own disclosure in the present application. As the Federal Circuit has stated in *Cardiac Pacemakers Inc. v. St Jude Medical Inc.* 72 USPQ2d 1333, 1336 (Fed. Cir 2004) that "Prior knowledge in the field of the invention must be supported by tangible teachings of reference materials, and the suggestion to combine references must not be derived by hindsight from knowledge of the invention itself. See also *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79 [42 USPQ2d 1378] (Fed. Cir. 1997) ("However, the record must provide a teaching, suggestion, or reason to substitute computer-controlled valves for the system of hoses in the prior art. The absence of such a suggestion to combine is dispositive in an obviousness determination.")"

ii. **The Examiner has failed to explain why a person of ordinary skill in the art reading FR '622 would look for Borschel.**

Borschel describes “a method of providing selenium in the form of selenate, in a nutritional product, and to nutritional products which contain selenate” (See Borschel, col. 1, lines 7-10). Therefore, Borschel does not describe the use of a selenium compound with any type of gaseous composition. The facts that (1) FR '622 relates only to gaseous compositions and (2) Borschel only describes non-gaseous compositions provides further evidence that Borschel has been combined with FR '622 based on an improper hindsight reliance on Applicants' own disclosure in the present application. The Examiner's failure to explain why a person of ordinary skill in the art looking for an odorant to use in a gaseous composition (FR '622) would look for a patent (Borschel) directed to “a method of providing selenium in the form of selenate, in a nutritional product, and to nutritional products which contain selenate” is further evidence that the Examiner has relied on improper hindsight reasoning and Applicants' own application in order to combine Borschel with FR '622

iii. **The Examiner has failed to explain why a person of ordinary skill in the art reading FR '622 would look for Rasmussen.**

Rasmussen describes “a treatment of polycrystalline ceramic electrolytes, such as beta-alumina, beta"-alumina and NASICON, with hydrogen selenide, preferably as a gas, to introduce hydrogen selenide into the surface of such electrolytes” (See Rasmussen, col. 1, lines 31-34). The Examiner's failure to explain why a person of ordinary skill in the art looking for an odorant to use in a gaseous composition (FR '622) would look for a patent directed to “a treatment of polycrystalline ceramic electrolyte” is evidence that the Examiner has relied on improper hindsight reasoning and Applicants' own application in order to combine Rasmussen with FR '622.

- d. The deficiencies of FR '622 in failing to teach or suggest selenium compounds cannot be properly remedied by Borschel or Rasmussen or any other reference.

For the reasons discussed above, the deficiencies of FR '622 in failing to teach or suggest selenium compounds cannot be properly remedied by Borschel or Rasmussen or any other reference. Therefore, the combination of Borschel or Rasmussen with FR '622 is *prima facie* improper, and the rejection of claims 2-4, 7-11, and 47-53 over the combination of Borschel or Rasmussen with FR '622 is *prima facie* improper and should be withdrawn

2. The rejection of claims 2, 7-11 and 59 over the combination of Borschel or Rasmussen with FR '622 is *prima facie* improper because the Final Action has provided no proper motivation for combining Borschel or Rasmussen with FR '622.

- a. The Examiner' alleged motivation for combining Borschel or Rasmussen with FR '622 is based on a mischaracterization of FR '622.

The rejection of claims 2, 7-11 and 59 over the combination of Borschel or Rasmussen with FR '622 is *prima facie* improper because the Examiner provides no appropriate basis for combining Borschel or Rasmussen with FR '622. See quotation from (MPEP) § 706.02(j) in Section B(2)(a) above.

The Final Action attempts to justify combining Borschel or Rasmussen with FR '622 based on the following conclusory statement which relies not on the references of Borschel, Rasmussen or FR '622, but instead on Applicants' own disclosure:

It would be obvious from either Borschel et al or Rasmussen et al to employ a hydrogen selenide as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be added . . . (See Final Action, p. 2).

However, the above allegation by the Examiner mischaracterizes what FR '622 actually teaches and/or suggests. Contrary to the above allegation by the Examiner, FR '622 does not and cannot suggest that compounds other than sulfur, much less selenium compounds, may be used as odorants with hydrogen. FR '622 only describes the use of mercaptan, thiophane and TBM (tertiary butyl mercaptan) odorants (see FR '622, Abstract), all of which are *sulfur compounds*. The Examiner has also failed to identify a single non-sulfur compound that is taught or suggested by FR '622. Therefore, the Examiner has failed to properly identify a motivation in FR '622 for combining either Borschel or Rasmussen with FR '622. As stated by the Federal Circuit in *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, 55 USPQ2d 1927, 1931 (Fed. Cir. 2000), “[d]etermining whether there is a suggestion or motivation to modify a prior art reference is one aspect of determining the scope and content of the prior art, a fact question subsidiary to the ultimate conclusion of obviousness.” (citing *Tec Air, Inc. v. Denso Mfg.*, 52 USPQ2d 1296, 1297-98 (Fed. Cir. 1999) (stating that the factual underpinnings of obviousness include whether a reference provides a motivation to combine its teachings with another)). Furthermore, as noted by the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), specific reasons must be shown in the art suggesting a combination of references. (See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.”)).

- b. The fact the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds is inconsistent with the Examiner's arguments for combining Borschel or Rasmussen with FR '622.

In addition to FR '622 failing to suggest the use of non-sulfur compounds, as stated by the Examiner at page 4 of the Restriction Requirement, selenium compounds are a "patentably distinct species" from sulfur compounds. Therefore, since, as the Examiner has previously admitted, selenium compounds are *patentably distinct from sulfur compounds*, it would *not be obvious* for a person of ordinary skill in the art to employ a selenium compound, including the hydrogen selenide compound of Borschel or Rasmussen, in place of the sulfur compounds of FR '622.

3. The rejection of claims 2, 7-11 and 59 over the combination of Borschel or Rasmussen with FR '622 is *prima facie* improper and should be withdrawn.

For the reasons discussed above, the rejection of claims 2, 7-11 and 59 over the combination of either Borschel or Rasmussen with FR '622 is improper and should be withdrawn.

- D. Rejection of claims 2, 3, 7-11, 47-49, 52 and 59 as being unpatentable under 35 U.S.C. § 103(a) over FR '622 in view of Schrauzer.

In addition to the reasons discussed above in Section A, in rejecting Claims 2, 3, 7-11, 47-49, 52 and 59 as being unpatentable under 35 U.S.C. § 103(a) over French '622 in view of Schrauzer, the Examiner has erred for at least the following additional reasons: (1) Schrauzer cannot be properly combined with FR '622 and (2) the Final Action has provided no proper motivation for combining Schrauzer with FR '622.

1. Schrauzer cannot properly be combined with FR '622 to reject claims 2, 3, 7-11, 47-49, 52 and 59.
  - a. FR '622 does not teach nor suggest non-sulfur odorous compounds.

The Examiner makes the following conclusory allegation in the paragraph bridging p. 2 and 3 of the Final Action:

It would be obvious from Schrauzer to employ an alkyl selenol as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be employed . . . (See Final Action, pp. 2-3).

*However, the Examiner has failed to identify a single non-sulfur odorous compound taught or suggested by FR '622, either in the Abstract or anywhere else FR '622.* Therefore, the Examiner's allegation, quoted above, is unsupported by any evidence. Furthermore, the fact the rejection of claims 2, 3, 7-11, 47-49, 52 and 59 is based on this unsupported allegation make the rejection of claim 2, 3, 7-11, 47-49, 52 and 59 *prima facie* improper.

- b. The Examiner has admitted that the selenium compounds are patentably distinct over the sulfur compounds described in FR '622.

Furthermore, as admitted by the Examiner at page 4 of his July 24, 2004 Restriction Requirement (Restriction Requirement), selenium compounds are a "patentably distinct" species from sulfur compounds. Because the Examiner, a person of at least ordinary skill in the art, has admitted that selenium compounds are *patentably distinct* from sulfur compounds, a reference, such as FR '622, that only describes sulfur

compounds, FR '622 cannot possibly motivate a person of ordinary skill in the art to look for a reference that describes any other type of compounds, much less selenium compounds. The Examiner's backtracking with respect to the Examiner's previous admission that selenium compounds are patentably distinct from sulfur compounds is also at least implicitly contrary to § 803 of the Manual of Patent Examining Procedure (MPEP) (see quotation from MPEP § 803 above).

- c. The Examiner's combination of Schrauzer with FR '622 is based on an improper hindsight reliance on Applicants' Application.
- i. FR' 622 provides no reason for combining a reference describing a selenium compound with FR '622.

Given the facts that: (1) the Examiner has been unable to identify a single non-sulfur compound taught or suggested by FR '622 and (2) the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds, the Examiner's combining of a reference describing a selenium compounds with FR '622 to remedy FR '622's deficiency of neither teaching nor suggesting selenium compounds can only be based on an improper hindsight reliance on Applicants' own disclosure in the present application. As the Federal Circuit has stated in *Cardiac Pacemakers Inc. v. St Jude Medical Inc.* 72 USPQ2d 1333, 1336 (Fed. Cir 2004) that "Prior knowledge in the field of the invention must be supported by tangible teachings of reference materials, and the suggestion to combine references must not be derived by hindsight from knowledge of the invention itself. See also *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79 [42 USPQ2d 1378] (Fed. Cir. 1997) ("However, the record must provide a teaching, suggestion, or reason to substitute computer-controlled valves for the system of hoses in the prior art. The absence of



such a suggestion to combine is dispositive in an obviousness determination.”)”

ii. **The Examiner has failed to explain why a person of ordinary skill in the art reading FR ‘622 would look for Schrauzer.**

Schrauzer describes “formulations of lipid soluble organic selenium compounds for topical application in humans and animals” that “may be used for the prevention or treatment of cancer in organs such as the skin, the breast, the rectum and the large intestine” (See Schrauzer, paragraph [0005]). The Examiner’s failure to explain why a person of ordinary skill in the art looking for an odorant to use in a gaseous composition (FR ‘622) would look for a patent (Schrauzer) directed to “formulations of lipid soluble organic selenium compounds for topical application in humans and animals” that “may be used for the prevention or treatment of cancer in organs such as the skin, the breast, the rectum and the large intestine” is further evidence that the Examiner has relied on improper hindsight reasoning and Applicants’ own application in order to combine Schrauzer with FR ‘622

d. **The deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Schrauzer or any other reference.**

For the reasons discussed above, the deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Schrauzer or any other reference. Therefore, the combination of Schrauzer with FR ‘622 is *prima facie* improper, and the rejection of claims 2-4, 7-11, and 47-53 over the combination of Schrauzer with FR ‘622 is *prima facie* improper and should be withdrawn

2. **The rejection of claims 2, 3, 7-11, 47-49, 52 and 59 over the combination of Schrauzer with FR ‘622 is *prima facie* improper**

**because the Final Action has provided no proper motivation for combining Schrauzer with FR '622.**

a. **The Examiner' alleged motivation for combining Schrauzer with FR '622 is based on a mischaracterization of FR '622.**

The rejection of claims 2, 3, 7-11, 47-49, 52 and 59 over the combination of Schrauzer with FR '622 is *prima facie* improper because the Examiner provides no appropriate basis for combining Schrauzer with FR '622. See quotation from (MPEP) § 706.02(j) in Section B(2)(a) above.

The Final Action attempts to justify combining Schrauzer with FR '622 based on the following conclusory statement which relies not on the references of Schrauzer or FR '622, but instead on Applicants' own disclosure:

It would be obvious from Schrauzer to employ alkyl selenol as the odorous product in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be employed . . . (See Final Action, pp. 2-3).

However, the above allegation by the Examiner mischaracterizes what FR '622 actually teaches and/or suggests. Contrary to the above allegation by the Examiner, FR '622 does not and cannot suggest that compounds other than sulfur, much less selenium compounds, may be used as odorants with hydrogen. FR '622 only describes the use of mercaptan, thiophane and TBM (tertiary butyl mercaptan) odorants (see FR '622, Abstract), all of which are *sulfur compounds*. The Examiner has also failed to identify a single non-sulfur compound that is taught or suggested by FR '622. Therefore, the Examiner has failed to properly identify a motivation in FR '622 for combining Schrauzer with FR '622. As stated by the Federal Circuit in *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, 55 USPQ2d 1927, 1931 (Fed. Cir. 2000), "[d]etermining whether there is a suggestion or motivation to modify a prior art reference is one aspect of determining the scope and content of the prior art, a

fact question subsidiary to the ultimate conclusion of obviousness.” (citing *Tec Air, Inc. v. Denso Mfg.*, 52 USPQ2d 1296, 1297-98 (Fed. Cir. 1999) (stating that the factual underpinnings of obviousness include whether a reference provides a motivation to combine its teachings with another)). Furthermore, as noted by the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), specific reasons must be shown in the art suggesting a combination of references. (See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (“[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.”); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) (“[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.”)).

- b. The fact the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds is inconsistent with the Examiner’s arguments for combining Schrauzer with FR ‘622.

In addition to FR ‘622 failing to suggest the use of non-sulfur compounds, as stated by the Examiner at page 4 of the Restriction Requirement, selenium compounds are a “patentably distinct species” from sulfur compounds. Therefore, since, as the Examiner has previously admitted, selenium compounds are *patentably distinct from sulfur compounds*, it would *not be obvious* for a person of ordinary skill in the art to employ a selenium compound, including the alkyl selenols of Schrauzer, in place of the sulfur compounds of FR ‘622.

3. The rejection of claims 2, 3, 7-11, 47-49, 52 and 59 over the combination of Schrauzer with FR ‘622 is *prima facie* improper and should be withdrawn.

For the reasons discussed above, the rejection of claims 2, 3, 7-11, 47-49, 52 and 59 over the combination of Schrauzer with FR '622 is improper and should be withdrawn.

**E. Rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 as being unpatentable under 35 U.S.C. § 103(a) over FR '622 in view of Baugh.**

In addition to the reasons discussed above in Section A, in rejecting Claims 2, 4, 7-11, 50, 51, 53 and 59 as being unpatentable under 35 U.S.C. § 103(a) over French '622 in view of Baugh, the Examiner has erred for at least the following additional reasons: (1) Baugh cannot be properly combined with FR '622 and (2) the Final Action has provided no proper motivation for combining Schrauzer with FR '622.

- 1. Baugh cannot properly be combined with FR '622 to reject claims 2, 4, 7-11, 50, 51, 53 and 59.**
  - a. FR '622 does not teach nor suggest non-sulfur odorous compounds.**

The Examiner makes the following conclusory allegation at the first full paragraph of page 3 of the Final Action:

It would be obvious from Baugh to employ a dimethyl selenide as the odorous compound in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be employed . . . (See Final Action, p. 3).

*However, the Examiner has failed to identify a single non-sulfur odorous compound taught or suggested by FR '622, either in the Abstract or anywhere else FR '622. Therefore, the Examiner's allegation, quoted above, is unsupported by any evidence.*

Furthermore, the fact the rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 is based on this unsupported allegation make the rejection of claim 2, 4, 7-11, 50, 51, 53 and 59 *prima facie* improper.

- b. **The Examiner has admitted that the selenium compounds are patentably distinct over the sulfur compounds described in FR '622.**

Furthermore, as admitted by the Examiner at page 4 of his July 24, 2004 Restriction Requirement (Restriction Requirement), selenium compounds are a "patentably distinct" species from sulfur compounds. Because the Examiner, a person of at least ordinary skill in the art, has admitted that selenium compounds are *patentably distinct* from sulfur compounds, a reference, such as FR '622, that only describes sulfur compounds, FR '622 cannot possibly motivate a person of ordinary skill in the art to look for a reference that describes any other type of compounds, much less selenium compounds. The Examiner's backtracking with respect to the Examiner's previous admission that selenium compounds are patentably distinct from sulfur compounds is also at least implicitly contrary to § 803 of the Manual of Patent Examining Procedure (MPEP) (see quotation from MPEP § 803 above).

c. **The Examiner's combination of Baugh with FR '622 is based on an improper hindsight reliance on Applicants' Application.**

i. **FR' 622 provides no reason for combining a reference describing a selenium compound with FR '622.**

Given the facts that: (1) the Examiner has been unable to identify a single non-sulfur compound taught or suggested by FR '622 and (2) the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds, the Examiner's combining of a reference describing a selenium compounds with FR '622 to remedy FR '622's deficiency of neither teaching nor suggesting selenium compounds can only be based on an improper hindsight reliance on Applicants' own disclosure in the present application. As the Federal Circuit has stated in *Cardiac Pacemakers Inc. v. St Jude Medical Inc.* 72 USPQ2d 1333, 1336 (Fed. Cir 2004) that "Prior knowledge in the field of the invention must be supported by tangible teachings of reference materials, and the suggestion to combine references must not be derived by hindsight from knowledge of the invention itself. See also *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1578-79 [42 USPQ2d 1378] (Fed. Cir. 1997) ("However, the record must provide a teaching, suggestion, or reason to substitute computer-controlled valves for the system of hoses in the prior art. The absence of such a suggestion to combine is dispositive in an obviousness determination.")"

ii. **The Examiner has failed to explain why a person of ordinary skill in the art reading FR '622 would look for Baugh.**

Baugh describes "a composition of matter for repelling animals that comprises a mixture of a metallic metal, a quantity of soil that has been extracted from the earth,

a nutrient source, and water” (See Baugh, col. 2, lines 55-58). The Examiner’s failure to explain why a person of ordinary skill in the art looking for an odorant to use in a gaseous composition (FR ‘622) would look for a patent (Baugh) directed to “a composition of matter for repelling animals that comprises a mixture of a metallic metal, a quantity of soil that has been extracted from the earth, a nutrient source, and water” is further evidence that the Examiner has relied on improper hindsight reasoning and Applicants’ own application in order to combine Baugh with FR ‘622

d. The deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Baugh or any other reference.

For the reasons discussed above, the deficiencies of FR ‘622 in failing to teach or suggest selenium compounds cannot be properly remedied by Baugh or any other reference. Therefore, the combination of Baugh with FR ‘622 is *prima facie* improper, and the rejection of claims 2-4, 7-11, and 47-53 over the combination of Baugh with FR ‘622 is *prima facie* improper and should be withdrawn

2. The rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 over the combination of Baugh with FR ‘622 is *prima facie* improper because the Final Action has provided no proper motivation for combining Baugh with FR ‘622.

a. The Examiner’ alleged motivation for combining Baugh with FR ‘622 is based on a mischaracterization of FR ‘622.

The rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 over the combination of Baugh with FR ‘622 is *prima facie* improper, because the Examiner provides no appropriate basis for combining Baugh with FR ‘622. See quotation from (MPEP) § 706.02(j) in Section B(2)(a) above.



The Final Action attempts to justify combining Baugh with FR '622 based on the following conclusory statement which relies not on the references of Baugh or FR '622, but instead on Applicants' own disclosure:

It would be obvious from Baugh to employ dimethyl selenide selenol as the odorous product in the composition of FR '622, since FR '622 suggests in the Abstract that any odorous gaseous product may be employed . . . (See Final Action, pp. 3).

However, the above allegation by the Examiner mischaracterizes what FR '622 actually teaches and/or suggests. Contrary to the above allegation by the Examiner, FR '622 does not and cannot suggest that compounds other than sulfur, much less selenium compounds, may be used as odorants with hydrogen. FR '622 only describes the use of mercaptan, thiophane and TBM (tertiary butyl mercaptan) odorants (see FR '622, Abstract), all of which are *sulfur compounds*. The Examiner has also failed to identify a single non-sulfur compound that is taught or suggested by FR '622. Therefore, the Examiner has failed to properly identify a motivation in FR '622 for combining Baugh with FR '622. As stated by the Federal Circuit in *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, 55 USPQ2d 1927, 1931 (Fed. Cir. 2000), "[d]etermining whether there is a suggestion or motivation to modify a prior art reference is one aspect of determining the scope and content of the prior art, a fact question subsidiary to the ultimate conclusion of obviousness." (citing *Tec Air, Inc. v. Denso Mfg.*, 52 USPQ2d 1296, 1297-98 (Fed. Cir. 1999) (stating that the factual underpinnings of obviousness include whether a reference provides a motivation to combine its teachings with another)). Furthermore, as noted by the Federal Circuit in *In re Lee*, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002), specific reasons must be shown in the art suggesting a combination of references. (See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed.

Cir. 1998) (“[E]ven when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination.”)).

- b. The fact the Examiner has admitted that selenium compounds are patentably distinct from sulfur compounds is inconsistent with the Examiner’s arguments for combining Baugh with FR ‘622.

In addition to FR ‘622 failing to suggest the use of non-sulfur compounds, as stated by the Examiner at page 4 of the Restriction Requirement, selenium compounds are a “patentably distinct species” from sulfur compounds. Therefore, since, as the Examiner has previously admitted, selenium compounds are *patentably distinct from sulfur compounds*, it would *not be obvious* for a person of ordinary skill in the art to employ a selenium compound, including the dimethyl selenide compound of Baugh, in place of the sulfur compounds of FR ‘622.

3. The rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 over the combination of Baugh with FR ‘622 is *prima facie* improper and should be withdrawn.

For the reasons discussed above, the rejection of claims 2, 4, 7-11, 50, 51, 53 and 59 over the combination of Baugh with FR ‘622 is improper and should be withdrawn.

F. Rejection of Claim 59 under 35 U.S.C. § 112, first paragraph.

In rejecting Claim 59 under 35 U.S.C. § 112, first paragraph, the Final Action alleges that the specification states that “the odorant is in a vapor phase at detectable concentration at a pressure of 6000 psi, which is not the same as being in the vapor

phase at a pressure greater than atmospheric pressure” (see Final Action, p. 2). Applicants note that 6000 psi is considerably above atmospheric pressure which is well-known to be around 14.7 psi. Furthermore, it is well known that an odorant that would be in a vapor phase at a pressure at 6000 psi would also be in a vapor phase at any pressure between 14.7 psi and 6000 psi (408 times atmospheric pressure). Therefore, Applicant’s description of an odorant being in a vapor phase at a pressure of 6000 in paragraphs [0010], [0011], [0012], [0068], [0074] and [0076] amply supports the claimed feature of the odorant “being in a vapor phase at a pressure greater than atmospheric pressure.” For at least the above reasons, the rejection of Claim 59 under 35 U.S.C. § 112, first paragraph, is improper and should be withdrawn.

#### **SUMMARY OF ARGUMENT AND RELIEF REQUESTED**

For at least the reasons discussed above, the rejection of Claims 2-4, 7-11, 47-53 and 59 under 35 U.S.C. § 103(a) over FR ‘622 in view of Prentice is *prima facie* improper and should be withdrawn. For at least the reasons discussed above, the rejection of Claims 2, 7-11 and 59 under 35 U.S.C. § 103(a) over FR ‘622 in view of either Borschel or Rasmusen is *prima facie* improper and should be withdrawn. For at least the reasons discussed above, the rejection of Claims 2, 3, 7-11, 47-49, 52 and 59 under 35 U.S.C. § 103(a) over FR ‘622 in view of Schrauzer is *prima facie* improper and should be withdrawn. For at least the reasons discussed above, the rejection of Claims 2, 4, 7-11, 50, 51, 53 and 59 under 35 U.S.C. § 103(a) over FR ‘622 in view of Baugh is *prima facie* improper and should be withdrawn. For at least the reasons discussed above, the rejection of Claim 59 under 35 U.S.C. § 112, first paragraph is improper and should be withdrawn.

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Accordingly, Applicants respectfully request the Honorable Board of Appeals and Interferences to reverse the Examiner's rejections of Claims 2-4, 7-11, 47-53 and 59 and remand with directions to allow the present application to issue with currently pending Claims 2-4, 7-11, 47-53 and 59.

Respectfully submitted,



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## VIII. CLAIM APPENDIX

2. A hydrogen composition comprising: hydrogen; and an odorant, said odorant having a vapor pressure greater than 0.5 psi and having a smell detectable at less than 1 ppm by a human nose, wherein said odorant is a selenium compound.
3. The composition of claim 2, wherein said selenium compound is ethylselenol.
4. The composition of claim 2, wherein said selenium compound is dimethyl selenide.
7. The composition of claim 2, wherein said gaseous composition consists essentially of hydrogen gas and said odorant.
8. The composition of claim 2, wherein said odorant comprises 0.01 to 1000 ppm of said composition.
9. The composition of claim 2, wherein said odorant comprises 0.1 to 40 ppm of said composition.
10. The composition of claim 2, wherein said odorant is not harmful to humans.
11. The composition of claim 7, wherein said odorant has a minimum olfactory power of 7.0, a minimum vapor pressure of 0.5 psi at standard temperature and pressure, a minimum diffusivity of 0.01147 cm<sup>2</sup>/s, and a maximum molecular weight of 200 g/mol.
47. The composition of claim 2, wherein said selenium compound is methylselenol.
48. The composition of claim 2, wherein said selenium compound is isopropylselenol.
49. The composition of claim 2, wherein said selenium compound is propylselenol.

50. The composition of claim 2, wherein said selenium compound is ethylmethylselenide.

51. The composition of claim 2, wherein said selenium compound is isopropylmethylselenide.

52. The composition of claim 2, wherein said selenium compound is tertbutylselenol.

53. The composition of claim 2, wherein said selenium compound is diethylselenide.

59. The composition of claim 2, wherein said odorant is in a vapor phase at a pressure greater than ambient pressure.

### **IX. EVIDENCE APPENDIX**

There is no evidence of record other than the references cited by the Examiner during the prosecution of the present application.



### **X. RELATED PROCEEDINGS APPENDIX**

There have been no decisions rendered by a court or the Board in any proceedings related to this appeal.